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**Bull**

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(54) **OBJECT RESTRAINT SYSTEMS AND METHODS OF OPERATION THEREOF**

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(57) **ABSTRACT**

Embodiments include object restraint systems and methods of their operation. The system is contained in a vehicle with a passenger compartment, and includes sensor and processing subsystems, a vessel, a restraint mechanism, and an actuator. The sensor subsystem produces a sensor signal indicating a magnitude of a sensed condition, and the processing subsystem asserts an actuator signal when the sensor signal indicates that a triggering condition has occurred. The vessel is configured to hold one or more inanimate objects. For example, the vessel may include a cupholder, a lidded or open compartment, a cargo area, or another storage space that is distinct from the passenger compartment. The actuator receives the actuator signal and activates the restraint mechanism in response to assertion of the actuator signal. The restraint mechanism, when activated, is configured to retain the object(s) within the vessel and to restrict the object(s) from entering the passenger compartment.

**18 Claims, 6 Drawing Sheets**

